Brain Disorders: Prevalence, predictors and triggers of migraine headache among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia- Afnan Khalid Alotaibi- King Abdulaziz University

Afnan Khalid Alotaibi

King Abdulaziz University, Saudi Arabia

Abstract

Objectives: To determine the prevalence, predictors, triggers and educational outcome of migraine among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia.

Methods: A cross-sectional study was completed among 566 participants selected through a multistage stratified random sample method. A validated, confidential, self-administered data collection sheet was utilized. It contained ID Migraine test™, Numeric Pain Rating Scale (NPRS). Questions about possible predictors, triggers and impact of migraine were asked. Descriptive, inferential statistics and multiple logistic regression analysis were conducted.

Results: Quite one-half (54.9%) of the participants had ≥ 2 headache attacks during the three months preceded the study. The prevalence of migraine was 26.3%, and 41.6% of the cases suffered from severe pain. The main migraine predictors were Functional Gastrointestinal Disorders (FGIDs), case history of migraine, female gender, and enrolment within the second school year . Exam stress and sleep disturbances were the foremost typical triggers. The majority of the participants reported that their educational performance and skill to attend sessions were affected during migraine attacks.

Conclusion: A relatively high prevalence of migraine was seen among our participants. FGIDs, gender and academic year were the predictors. Screening and management of migraine among medical students are required. Conduction of relaxation programs and stress management courses also are recommended.

INTRODUCTION: Nowadays, headache has been considered together of the highest global disabling medical conditions.1 Migraine is a crucial sort of headache, and one among the chronic multifaceted neuro-inflammatory disorders. It is characterized by recurrent throbbing headache pain that typically affects one side of the top, and is usually amid nausea and disturbed vision. Migraine headache accounts for 1.4% of all neurological and mental disorders. It was reported that the estimated lifetime prevalence of migraine ranged 12%-18%.

Migraine is taken into account a crucial ill health among university students. This is due to its high prevalence, associated morbidities, disability and decreasing academic performance. Medical student are usually working hard and requiring constant concentration and studying, which may cause much stresses and sleep disturbances, subjected to high stressful conditions.

There is inadequate number of recent studies done about migraine headache among medical students in Jeddah, Saudi Arabia. Hence, such study was required. The objective of the study was to work out the prevalence, predictors, triggers and academic outcome of migraine headache among medical students and interns in King Abdulaziz University (KAU) in Jeddah, Saudi Arabia.

METHODS: A cross sectional study was conducted during the educational year 2014/2015. The study population included medical students who completed the freshman year (2nd – 6th year), and interns at KAU. A multistage stratified random sample method was used. Stratification put into account the educational level and gender. The sample size was calculated according to the following pre-established formula.

The calculated sample size to achieve a precision of ± 0.04%, at a 95% Confidence Interval (CI) was 600 participants. A validated, confidential, self-administered data collection sheet was used. The face and content validity of the instrument was assessed by two experts. Internal consistency reliability was assessed by Cronbach's alpha test and found to be 0.8. The data collection sheet asked about personal, socio-demographic data, habits, Grade Point Average (GPA), and history of ≥ 2 general headache attacks during three months

preceded the study. History of chronic diseases, Functional Gastrointestinal Disorders (FGIDs) other than Irritable Bowel Syndrome (IBS), and IBS were asked. Anxiety and depression were assessed. Weight and height were determined.

The English version of ID Migraine™ test (with good sensitivity and specificity)6 was used. The detected migraineurs were asked about migraine regarding the age onset, frequency, duration of attacks, associated symptoms, triggers, etc. In addition, the Numeric Pain Rating Scale (NPRS) (7) was used to assess severity of migraine during attacks. For females, the effect of menstrual period on migraine was asked. Drugs utilized for relieving migraine headache was determined. Educational outcomes of migraine were assessed.

Statistical analysis: The data was analysed using SPSS (21). Body Mass Index (BMI) was calculated. The severity of migraine pain was classified by NPRS into mild, moderate and severe degrees.7 Descriptive statistics were done. Pearson's Chi-square (X2), Odds Ratios (ORs) and 95% CIs were calculated. A multiple logistic regression analysis model was done. All P-values < 0.05 were considered statistically significant.

Ethical statement: The research was conformed to Helsinki Declaration. The protocol of the study was approved by the Institutional Review Board (IRB) of King Abdulaziz University Hospital (KAUH), with a Reference Number of 334-14. A written consent was taken from each student accepted participant. Administrative approvals were also taken.

RESULTS: Out of 600 invited medical students and interns, 566 completed the questionnaire (acceptance rate= 94.3%). Their mean age was 21.5 ± 1.6 years. The prevalence of getting ≥ 2 headache episodes during the three months preceded study was 54.9%. Furthermore, the prevalence of migraine headache was 26.3% (47.9% of all types of headache). The mean age of start of migraine attacks was 16.9±3.6 years, and the mean number of attacks was 4.6± 1.5 per month. About one-third (34.8%) of female sufferers reported that their migraine headache is suffering from cycle . NPRS revealed that 14.8%, 43.6% and 41.6% of migraines suffered from mild, moderate and severe degrees of pain, respectively.

DISCUSSION: The current study illustrated that more than one-half of the participants suffered from ≥ 2 headache attacks during the three months preceded the study. This coincides with other study done among medical students from Isfahan, Iran. Results from an Indian study showed that migraine constituted 42% of all types of headache, which agrees with our findings.

The prevalence of migraine headache among our participants was 26.3%, which agrees with recent similar studies from Kuwait, USA and India. On the other hand, much lower rates were reported from other studies done in Iran, Turkey and Nigeria. On the other hand, a higher prevalence was reported from Peshawar, Pakistan. The causes of such discrepancies could be attributed to cultural differences between countries, difference in the time of conduction of their studies, the amount of educational stress and the instrument used for diagnosis of migraine. In the current work, the mean number of migraine attacks was 4.6 attacks / month, which is in line with the results from Kuwait and Pakistan.

Our findings revealed that presence of migraine headache was associated with female gender. This was supported by results from many other studies. In addition, about one-third of female migraineurs in our study reported that migraine was affected by their menstrual cycle, which agrees with the results from Croatia. Endogenous sex steroid hormones may have a relevant role in explaining of such findings.

The second year students in our study reported significantly higher rate of migraine compared to others. This can be explained by numerous stressors that face medical students during the first medical education year (after freshman year). However, our results disagree with the Croatian study. The cause of discrepancy may be attributed to cultural differences or the amount of faced stresses.

Results of the present study revealed presence of an association between migraine headache and the family history of it. This finding agrees also with the results of other studies. FGIDs was the first predictor of migraine in the current study and this is in line with other studies. The possible physiological pathways of migraine may be associated with the brain-gut axis, neuro-immunity, and neuro-endocrine interactions.

Our results showed that stresses, and sleep disturbance were the commonest reported triggers, which agree with results from India and Kuwait. Furthermore, smoking was reported as a trigger of migraine among approximately 16% of migraineurs which is in line with results from Spain.

The commonest accompanying symptoms of migraine in our study were difficulty in concentration and photophobia. Similarly, results from the Indian study reported that photophobia was the commonest manifestation.9 Paracetamol was the most frequently used analgesic for migraine in the current study. On the other hand NSAIDs were

the most commonly used by US students. This discrepancy may be due to widespread use of Paracetamol in Saudi Arabia.

The present study showed that educational performance and the ability to attend educational classes were affected to a certain degree among the majority of migraines during migraine attacks. These findings are in line with findings from a study from the USA.

Note: This work is partly presented at 5th International Conference on Brain Disorders and Therapeutics Madrid, Spain

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